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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* INDRA LAKSONO

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Appeal 2007-3106  
Application 09/819,147  
Technology Center 2600

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Decided: June 30, 2008

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Before KENNETH W. HAIRSTON, ROBERT E. NAPPI  
and SCOTT R. BOALICK, *Administrative Patent Judges*.

HAIRSTON, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant appeals under 35 U.S.C. § 134 from a final rejection of claims 1 to 4, 6 to 13, 15 to 20, 57, 58, 60, 61, 63 to 65, 67, and 68. We have jurisdiction under 35 U.S.C. § 6(b).

We will reverse the rejections.

## STATEMENT OF THE CASE

Appellant has invented a system and a method of creating a downscaled compressed video stream from an original compressed video stream. The downscaled compressed video stream is created by a video decoder that provides decoded video and first motion vectors associated with the original compressed input video stream, a first memory that stores the first motion vectors, a scalar that receives the decoded video and provides a scaled video output, and an encoder that provides a compressed representation of the scaled video output from the scalar using the first motion vectors (Figure 1; Specification 3 and 19).

Claim 1 is representative of the claims on appeal, and it reads as follows:

1. A system comprising:

a video decoder to receive a video input stream having one or more first motion vectors, the video decoder to provide decoded video and the first motion vectors associated with the video input stream;

a first memory coupled to the video decoder to store the first motion vectors;

a scaler coupled to receive the decoded video and to provide a scaled video; and

an encoder coupled to the scaler and the first memory to provide a compressed representation of the scaled video using the first motion vectors saved in the first memory.

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Samad	US 5,027,203	Jun. 25, 1991
Boyce	US 5,635,985	Jun. 3, 1997
Takahashi	US 6,005,623	Dec. 21, 1999
Vainsencher	US 6,005,624	Dec. 21, 1999
Mougeat	US 6,236,683 B1	May 22, 2001 (filed Feb. 7, 1995)

Peng Yin et al., *Video Transcoding By Reducing Spatial Resolution*, Princeton University, Princeton, NJ (2000).

The Examiner rejected claim 10 under the second paragraph of 35 U.S.C. § 112 as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

The Examiner rejected claims 1 to 4, 6, 10 to 13, 60, 63, 67, and 68 under 35 U.S.C. § 103(a) based upon the teachings of Boyce and Takahashi.

The Examiner rejected claims 7, 8, 15, 17, 19, and 20 under 35 U.S.C. § 103(a) based upon the teachings of Boyce, Takahashi, and Yin.

The Examiner rejected claims 9, 16, and 18 under 35 U.S.C. § 103(a) based upon the teachings of Boyce, Takahashi, and Samad.

The Examiner rejected claims 57, 58, 64, and 65 under 35 U.S.C. § 103(a) based upon the teachings of Boyce, Takahashi, and Vainsencher.

The Examiner rejected claim 61 under 35 U.S.C. § 103(a) based upon the teachings of Boyce, Takahashi, and Mougeat.

## ISSUES

In response to the indefiniteness rejection, Appellant contends that the recitation of MPEG should be limited to the variations of MPEG known at the time of filing of the subject application, and that this recitation “is sufficient to particularly point out and define which MPEG recommendations are applicable in view of claim 10” (Br.<sup>1</sup> 21 and 22). Thus, the issue before us is whether the term “MPEG” renders claim 10 indefinite under the second paragraph of 35 U.S.C. § 112.

In response to the obviousness rejections, Appellant argues *inter alia* that Boyce fails to disclose or suggest a first memory coupled to a video decoder that stores motion vectors for subsequent use by an encoder as recited in claim 1 (Br. 7), and that “the proposed combination of the *Boyce* and *Takahashi* references is contrary to the goals of both the *Boyce* reference and the *Takahashi* reference” (Br. 13). Thus, the issue before us is whether the applied prior art teaches or would have suggested to the skilled artisan the storage of motion vectors and the use of the stored motion vectors to create a compressed video image.

## FINDINGS OF FACT

### *Indefiniteness Rejection*

The disclosed invention uses an MPEG standard for high resolution HDTV/ATSC 1920 x 1080i format (Specification 1 and 2).

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<sup>1</sup> The resubmitted Appeal Brief was filed October 10, 2006.

*Obviousness Rejections*

1. As indicated *supra*, the system and method disclosed and claimed by Appellant uses stored motion vectors during the encoding of scaled video to thereby provide a compressed representation of the scaled video.

2. Boyce uses a preparser 112 that discards certain data before it is stored in coded data buffer 116 to thereby save memory space (Figure 2A; col. 5, l. 63 to col. 6, l. 7). Although motion vectors are listed among the data that passes through the preparser 112 (col. 6, ll. 18 to 26), the only data that is expressly discarded by the preparser 112 are higher frequency discrete cosine transform (DCT) coefficients that exceed a preselected number of DCT coefficients (col. 6, ll. 59 to 65; col. 7, ll. 38 to 44). Thus, the motion vectors are stored in the coded data buffer 116 along with the variable length encoded input video signal that passed through the preparser 112. The variable length encoded video signal is held in the coded data buffer 116 until the variable length decoding circuit 120 is ready to decode the video data (col. 8, ll. 58 to 63). The decoded video is downsampled in downsampler 126 prior to storage in the frame buffer 118 (col. 10, ll. 13 to 18). Thereafter, the decoded video is sent from the frame data buffer 118 to a display (col. 11, ll. 39 to 46).

3. Takahashi describes the use of motion vectors during an encoding operation (Figures 2A to 2D; col. 9, ll. 23 to 44).

4. The Examiner relied on Yin for its motion vector teachings (Figure 1; Section 3.1) (Ans. 7 and 8).

5. According to the Examiner, “[t]he particular video motion estimations involving the motion vector reduction process of providing the

most frequently occurring motion vectors is however old and well recognized in the art, as exemplified by Samad et al (see column 15, line 61 to column 16, line 13)” (Ans. 9).

6. “Vainsencher discloses a system for performing motion compensation as shown in Figures 1-3, and teaches the conventional use of a memory (112 of Figure 3) coupled to a video decoder (i.e., 102, 104, 106, 108, 110 of Figure 3) to store all plurality of first motion vectors used to build a frame of the compressed video image (see column 8, lines 33-67)” (Ans. 10).

7. “Mougeat et al discloses an image predictor as shown in Figures 3, 4, and 6, and teaches the particular use of double buffering of motion vectors wherein motion vectors are simultaneously being stored in memory 40 of Figures 3, 4, 6 (see column 2, lines 22-38, column 2, line 66 to column 4, line 19)” (Ans. 11).

## PRINCIPLES OF LAW

### *Indefiniteness*

Any analysis under 35 U.S.C. § 112 should begin with a determination of whether the claims do, in fact, set out and circumscribe a particular area with a reasonable degree of precision and particularity when read in light of the application disclosure as they would be by one possessing ordinary skill in the art. *In re Moore*, 439 F.2d 1232, 1235 (CCPA 1971).

### *Obviousness*

The Examiner bears the initial burden of presenting a prima facie case of obviousness. *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992). If that

burden is met, then the burden shifts to the Appellant to overcome the prima facie case with argument and/or evidence. *See id.*

The Examiner's articulated reasoning in the rejection must possess a rational underpinning to support the legal conclusion of obviousness. *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006).

## ANALYSIS

### *Indefiniteness*

As indicated *supra*, Appellant expressly states that the disclosure uses an MPEG standard for HDTV/ATSC 1920 x 1080i format. It is well known that the MPEG standard used for such a high-definition signal is MPEG-3. Accordingly, we are of the opinion that claim 10 is not indefinite because the skilled artisan would know which MPEG standard applies to the claimed invention when it is considered in light of what is set forth in the application disclosure.

### *Obviousness*

We agree with the Examiner that motion vectors are stored in first memory 116 in Boyce, and that downsampler 126 operates as a down scaler to provide a scaled video output (Ans. 5) (Finding of Fact 2). We additionally agree with the Examiner that Takahashi uses motion vectors during an encoding operation (Ans. 6) (Finding of Fact 3). We do not, however, agree with the Examiner's reasoning (Ans. 6 and 7) that it would have been obvious to the skilled artisan to provide Boyce with an encoder that uses the stored motion vectors to encode the video output presumably from the frame buffer 118. As indicated *supra*, the motion vectors stored in



the coded data buffer 116 are sent to the variable length decoding circuit 120 for decoding of the video data. The only other use of the motion vectors is in the feedback loop from the frame buffer 118 to the downsampler 126 via the motion compensated prediction circuit 130 (col. 11, ll. 47 to 65). Neither the applied references nor the Examiner provides a teaching or a convincing line of reasoning as to why the skilled artisan would have encoded the output from the frame buffer 118 in Boyce. Thus, in the absence of the Appellant's disclosed and claimed invention, we are of the opinion that the skilled artisan would not have made the suggested modifications to Boyce based upon the teachings of Takahashi. In summary, the Examiner's articulated reasoning in the rejection does not possess a rational underpinning to support a finding of obviousness of claims 1 to 4, 6, 10 to 13, 60, 63, 67, and 68 based upon the teachings of Boyce and Takahashi.

Turning to the teachings of Yin, Samad, Vainsencher, and Mougeat, we find that none of the teachings of these references cures the noted shortcoming in the teachings of Boyce and Takahashi (Findings of Facts 4 to 7). It follows that claims 7 to 9, 15 to 20, 57, 58, 61, 64, and 65 are not rendered obvious by the teachings of the applied references.

#### CONCLUSION OF LAW

The Examiner has not established the indefiniteness of claim 10, and the Examiner has not established the obviousness of claims 1 to 4, 6 to 13, 15 to 20, 57, 58, 60, 61, 63 to 65, 67, and 68.

ORDER

The indefiniteness rejection of claim 10 is reversed, and the obviousness rejections of claims 1 to 4, 6 to 13, 15 to 20, 57, 58, 60, 61, 63 to 65, 67, and 68 are reversed.

REVERSED

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